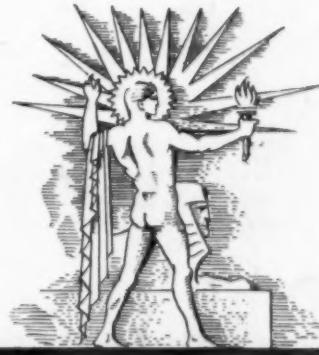
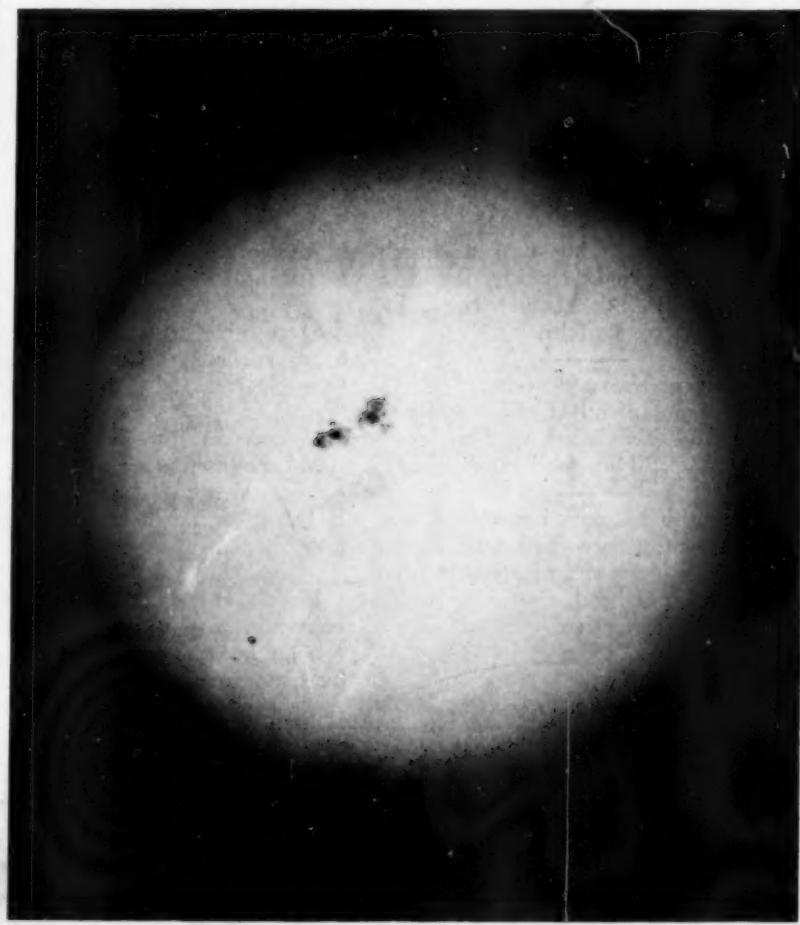


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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



October 22, 1938

100,000 Mile Spot

See Page 260



A SCIENCE SERVICE PUBLICATION

Do You Know?

Germany is trying to start a silk-worm and mulberry industry.

Crumbling rock is virtually unknown in the Teton mountain range, making for greater safety in climbing.

Taking an elephant's temperature is not so simple—it varies in different parts of the animal's body by as much as one and one-half degrees.

People have been wearing necklaces since the Old Stone Age, 30,000 years ago, when beads were made of animal teeth strung on sinew.

Using a special coring machine, scientists recently got a sample of the red clay from the Pacific floor, under water two and a half miles deep.

An anthropologist tells us that boys in the Old Stone Age probably could whistle, because modern primitives such as Hottentots do it quite well.

An argument over sauerkraut has apparently been settled: experiments indicate that sauerkraut is a good source of Vitamin C if properly prepared and promptly canned.

Excavating the eighth century palace of an Arab caliph near Jericho, archaeologists have found that the decorations include human and animal designs, thus proving that the famous Moslem aversion to human and animal figures in art did not arise until the ninth century.

SCIENCE NEWS LETTER

Vol. 34 OCTOBER 22, 1938 No. 17

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 2101 Constitution Avenue, Washington, D. C., Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years \$7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

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NEW BOOKS ON SCIENCE—FALL 1938

This issue contains Science Service's semi-annual comprehensive bibliography of current books in various scientific fields. It lists those published or promised during the latter half of this year. Books are intelligent companions for recreation or useful tools for research. Books like those in this list will make exceptional Christmas gifts. It is not too early to begin to think about your gift problems and SCIENCE NEWS LETTER will aid you with special suggestions if you wish them. SCIENCE NEWS LETTER will obtain for you any American book or magazine in print. Send check or money order to cover regular retail price (\$5 if price is unknown, change to be remitted) and we shall pay postage in the United States. When publications are free, send 10c for handling. Address: Book Department, SCIENCE NEWS LETTER, 2101 Constitution Ave., Washington, D. C.

Cutting or shaving hair does not make it grow faster or thicker.

Seventy-five per cent. of New Hampshire's sugar maple trees fell in the recent hurricane.

Workmen excavating near a church in Essex, England, recently found a hoard of thirteenth century coins, including two counterfeits.

Varnish of the fifth century B. C. was made out of oil of cedar and turpentine, and this varnish used on mummy cases is still in good condition.

The British Museum has what it considers the most important relic of the Vikings outside of Scandinavia: A Viking ship figure head, the only one in existence showing the animal figure heads mentioned often in sagas and on tombstones.

There are 200 hospitals in New York City.

The duck-billed platypus walks with its feet rolled into fists.

An orang-utan in the New York Zoo is recovering from a tropical disease something like athlete's foot in man.

Spectacular "rain forests" caused by heavy rainfall are a feature of the new Olympic National Park in Washington State.

Military men regard poison gas as an economical way of "knocking out" men in battle, but on the other hand, it does not kill many.

Hope that the buried portions of Herculaneum may still preserve important Roman books and manuscripts is held by some archaeologists.

zines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

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Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature and in the Engineering Index.

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AERONAUTICS

New Inventions Add Greatly To Safety of the Aviator

Altimeter Showing Height Above Ground, Static Suppressor, Homing Device, Stall Warning Announced

FOUR new air safety devices, announced within a week of each other, have completely changed the aviation picture and have brought markedly nearer aviation's goal of railroad safety and dependability.

Apparent answers to most of the accidents which have marred the record of commercial aviation and to many of those which have plagued private and military flyers are provided by the echo altimeter, static suppressor, automatic homing device or direction finder and stall warning, enthusiastic but cautious airmen agree. The static suppressor is already being installed on planes, but it may be some months before all of them can be placed in general use.

Aviation's dream of something to tell the fogbound pilot when he is approaching mountain obstacles and similar menaces to safety appears to be achieving reality in the echo altimeter developed jointly by United Air Lines and the Western Electric Company.

All but five per cent. of the ear-choking static that blots out radio beacon, weather reports and instructions from the ground with dangerous impartiality is cut out by a small spring cartridge that shoots a five-foot wire out behind the plane. This is the new static suppressor, which achieves these results when used in conjunction with the standard anti-static loop antenna, its developers, United Air Lines, claim.

For "Homing"

The pilot who wanders off the radio beam, his invisible highway in the sky, will nevertheless not be lost if he is equipped with the newly-developed automatic direction finder. The product of research by the Sperry Gyroscope Company and the R.C.A. Manufacturing Company, the new device combines a direction finder and a continuously-reading instrument on whose face is an arrow that points continuously toward the ground station to which the radio direction finder is tuned. If tuned to the radio range transmitter and linked with the automatic pilot, it provides automatic blind flying.

Private flyers, whose relative lack of experience enables them to get more easily into stalls, in which their planes are temporarily out of control and drop sharply, and military flyers who must put their ships through ticklish maneuvers will receive help from the automatic stall warning. Developed by the National Advisory Committee for Aeronautics, government-supported aeronautics research institution, the device consists of a small "leading edge" for the wing that stalls just before the wing as a whole stalls, and an instrument to detect that preliminary stall. The detector is, of course, linked to a horn or other means of warning the pilot.

Mountain Detector

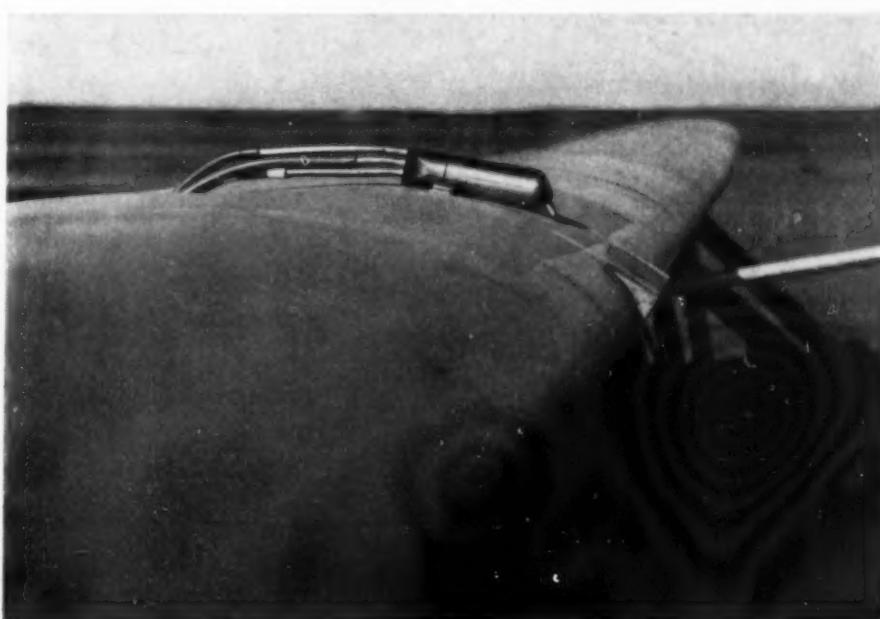
Half of the commercial airline disasters in the last few years have been crashes into mountainsides. Possession of the echo or absolute altimeter, which measures the time taken by a 500-mega-

cycle radio beam to travel earthward and back again to determine how far away the ground or water surface is, would have prevented them, in the opinion of competent authorities. The idea on which the system is based is not new, but it has been developed by Peter C. Sandretto of United and Russell Newhouse of Western Electric only during the last year and a half.

Discharges Static

Principle of the static suppressor is the fact that static electricity can be discharged from a fine point. The end of the wire is the fine point for static electricity gathered on the plane. The spring cartridge, the new feature of the device, is a simple means of pushing the wire out when static gets bad. The ordinary method, a wind-catching sleeve on the end of the wire, means the elimination of the sharp point at the end. A simple trailing wire can't be used because of the danger of fouling the tail surfaces and controls when the plane is not moving rapidly through the air.

Planes stall when the speed is so low or the climb is so steep (actually, when the angle of attack of the wings is so high) that smooth airflow over the wing, which provides the lift for the plane, is interrupted. When this occurs the pressure on an air-speed indicator type of device placed on the wing drops sharply; this pressure drop can be easily



WARNING

This little gadget warns a pilot his airplane is on the verge of stalling because the small section on the leading edge of the wing is so constructed that it goes into the stall first. This happening is immediately flashed to the pilot.



"HOMING"

When the air navigator once tunes this new Sperry-RCA automatic direction finder to a radio beacon station, it points continuously to that station. The pilot need pay no further attention to its operation. William H. Dum, (left) American Air Lines pilot, is discussing the device with J. G. Flynn, Jr. Superintendent of Communications. Linked with the automatic pilot, this device provides not only automatic flying, but automatic blind flying as well.

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detected. Planes that stall drop sharply 100 or more feet before the pilot can recover; when this occurs at low altitude, a crash is a frequent result. The stall warning was developed by F. L. Thompson in flight tests at the N. A. C. A.'s Langley Memorial Aeronautical Laboratory at Langley Field, Va. One Army and one Navy plane are also equipped with it. Since it is an unpatented government development, it is open to private manufacture without payment of royalty.

Science News Letter, October 22, 1938

ASTRONOMY

100,000-Mile Sunspot Crosses Face of Sun

See Front Cover

STORMY weather on earth, though it has laid whole states waste, is as nothing compared to what has been happening on the face of the sun during the past couple of weeks. The face of the sun was marked with an enormous sunspot, representing a pair of fiery tornadoes that darkened a strip of solar territory 100,000 or more miles long, and 50,000 miles wide at the widest part. Into that vast cloud a couple of dozen earths could be dropped at once, and still leave room for them to rattle around.

The spot was studied and photographed, since its first appearance on Oct. 5, by Mrs. L. T. Day, astronomer at the U. S. Naval Observatory. If it lasts through another rotation of the sun, it should reappear about Nov. 2. There is some suggestion that this spot was "budding" a month ago, Mrs. Day said. There was a small spot in about the same position on the sun's face on Sept. 16.

Sunspots are an indication of intense activity on the sun, which is often reflected here on earth by magnetic storms. These storms are unobserved by human beings, because our senses have no way of perceiving magnetic changes. But they do affect us just the same, because they seriously interrupt telegraphic and radio communication, and are frequently accompanied by flaring auroral outbursts.

Science News Letter, October 22, 1938

North Carolina will use cotton-and-rubber floor covering and cotton wall board in building its exhibit for the New York World's Fair.

Single women under 25 years old, who wish to work in offices and certain trades in Germany, are with a few exceptions required to work a year first in domestic service.

NEW BOOKS ON SCIENCE

Science News Letter presents a comprehensive list of scientific books published or to be published between July 1 and December 31, 1938. All information is believed to be correct but is not guaranteed. Prices are listed where known. Prices marked * are tentative.

Aeronautics

AIR NAVIGATION, 2nd ed.—P. V. H. Weems—*McGraw*.
 AIR PILOTING—V. Simmons—*Ronald*, \$3.
 AIRCRAFT OF THE WORLD—Eric Sargent—*Appleton*, \$3.
 AIRPLANE DESIGN MANUAL—Frederick Teichmann—*Pitman*, \$3.
 AIRPLANE SERVICING MANUAL—Victor W. Page—*Henley*, \$6.
 HIGH, WIDE AND FRIGHTENED—Louise Thaden—*Stackpole*, \$2.
 LISTEN! THE WIND—Anne Morrow Lindbergh—*Harcourt*, \$2.50.
 METAL AIRPLANE STRUCTURES—Flavius E. Loudy—*Henley*, \$5.
 NEW PICTURE BOOK OF FLYING—Frank Dobias—*Macmillan*, \$2.
 OUR COUNTRY FROM THE AIR—Edna E. Eisen—*Morrow*, \$2.
 THE STORY OF THE WINGED-S—Igor I. Sikorsky—*Dodd*, \$3.
 THROUGH THE OVERCAST—Assen Jordanoff—*Funk*, \$3.
 WINGS IN THE NIGHT—Willis S. Fitch—*Marshall Jones*, \$2.

Archaeology and Anthropology

THE AGRICULTURAL AND HUNTING METHODS OF THE NAVAHO INDIANS—W. W. Hill—*Yale*, \$2.50.
 THE ANNUAL OF THE AMERICAN SCHOOLS OF ORIENTAL RESEARCH, Vol. XVII for 1936-1937—Millar Burrows and E. A. Speiser, eds.—*Amer. Schools of Orient. Res., New Haven*, \$2.50.
 AN ARCHAEOLOGICAL SURVEY OF THE NORRIS BASIN IN EASTERN TENNESSEE—William S. Webb—*Govt. Print. Off.*, \$1.
 ARCHAEOLOGICAL WORK IN THE ACKMEN-LOWRY AREA, SOUTHWESTERN COLORADO, 1937—Paul S. Martin, *Field Mus.*, \$1.75.
 A BRIEF HISTORY OF NAVAJO SILVERSMITHING—Arthur Woodward—*Northern Ariz. Soc. of Science and Art*, \$1.85.
 CEREMONIAL COSTUMES OF THE PUEBLO INDIANS—Virginia More Roderiguer—*Augustin*, \$12.
 CHIRICAHUA AND MESCALERO APACHE TEXTS—Harry Hoijer, with Ethnological Notes by Morris Edward Opler—*U. Chicago*, \$3.
 CORPORAL WANZI—Frank Brownlee—*Augustin*, \$2.25.
 DAHOMEY: AN ANCIENT WEST AFRICAN KINGDOM—Melville J. Herskovits—*Augustin*, 2 vols., \$12.
 DURA-EUROPOS AND ITS ART—M. Rostovtzeff—*Oxford*, \$5*.
 EGYPTIAN ARCHITECTURE AS CULTURAL EXPRESSION—E. Baldwin Smith—*Appleton*, \$6.
 EXCAVATIONS AT OLYNTHUS. Part VIII: The Hellenic House—David M. Robinson and J. Walter Graham—*Johns Hopkins Press*, \$15.
 EXCAVATIONS AT TALL CHAGAR BAZAR AND AN ARCHAEOLOGICAL SURVEY OF THE HABUR REGION, 2nd Campaign, 1936—M. E. L. Malloian, *Oxford*, \$4.25*.
 5000 YEARS AGO—Ralph V. D. Magoffin—*Hale*, \$2.75.

GENERAL ANTHROPOLOGY—Franz Boas, ed.—*Heath*, \$4.
 HISTORICAL BACKGROUND OF THE BIBLE—J. N. Schofield—*Nelson*, \$2.50.
 HOPI KACHINAS—Earle and Kennard—*Augustin*, \$10.
 IMPERIAL BYZANTIUM—Bertha Diener—*Little, Brown*, \$3.50.
 THE INDIAN COSTUME BOOK—Julia M. Seton—*Seton Village Press*, \$3.50.
 KHORASABAD, Vol. 40, Pt. 2: The Citadel and the Town—Gordon Loud and Charles B. Altman—*U. Chicago*, \$30.
 LAST LECTURES—Roger Fry—*Macmillan*, \$6.
 LION AND JACKAL—Frank Brownlee—*Augustin*, \$1.50.
 MANDAN HIDASTA MYTHS AND CEREMONIES—Martha Warren Beckwith—*Augustin*, \$3.50.
 MASTABA OF MERERUKA, Vol. 31, Pt. 1, and Vol. 39, Pt. 2—Prentice Duell—*U. Chicago*, \$40 and \$50.
 MEGIDDO TOMBS, Vol. 33—P. L. O. Guy—*U. Chicago*, \$15.
 MOSAICS OF ANTIOCH—C. R. Morcy—*Longmans*, \$4.
 NAVAJO MYTHS AND CEREMONIES OF THE BLESSING CHANT, WATER CHANT AND HAIL CHANT—Wheelwright and Newcomb—*Augustin*, \$15.
 NEW DISCOVERIES RELATING TO THE ANTIQUITY OF MAN—Sir Arthur Keith—*Lippincott*, \$7.
 THE OJIBWAY WOMAN—Ruth Landes—*Augustin*, \$3.
 PAJARITO PLATEAU AND ITS ANCIENT PEOPLE—Edgar Lee Hewett—*U. N. Mex.*
 PERUVIAN PHARAOHS—Miles Poindexter—*Christopher*, \$4.50.
 THE PEYOTE CULT—Weston La Barre—*Yale*, \$2.50.
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 THE SKY-RELIGION IN EGYPT—G. A. Wainwright—*Cambridge (Macmillan)*, \$2.50*.
 SNARES, DEADFALLS AND OTHER TRAPS OF THE NORTHERN ALCONQUIANS AND NORTHERN ATHAPASKANS—John M. Cooper—*Catholic U.*, \$2.
 SO LIVE THE WORKS OF MEN—Anniversary volume honoring Edgar Lee Hewett—*U. N. Mex.*, \$10.
 SON OF OLD MAN HAT—Walter Dyk—*Harcourt*, \$3.50.
 TECUMSEH AND HIS TIMES: The Story of a Great Indian—John M. Oskison—*Putnam's*, \$2.75.
 TEMPLE OF KING SETHOS I AT ABYDOS—Alan H. Gardiner, ed.—*U. Chicago*.
 THEY WROTE ON CLAY—Edward Chiera, ed. by George G. Cameron—*U. Chicago*, \$3.
 UR EXCAVATIONS: Vol. V, The Ziggurat and Its Surroundings—Sir Leonard Woolley—*U. Penn.*, \$18.
 VIKINGS OF THE SUNRISE—Peter H. Buck—*Stokes*, \$3.50.

Astronomy

COSMOLOGICAL THEORY—G. C. McVittie—*Chem. Pub.*, \$1.25.
 A HUNDRED YEARS OF ASTRONOMY—R. L. Waterfield—*Macmillan*, \$5.75.
 AN INTRODUCTION TO THE STUDY OF STELLAR STRUCTURE—S. Chandrasekhar—*U. Chicago*, \$10.
 STARCRAFT—William H. Barton, Jr., and Joseph Marion Joseph—*Whittlesey*, \$2.50.
 STELLAR DYNAMICS—W. M. Smart—*Cambridge (Macmillan)*, \$8*.
 THE STORY OF ASTRONOMY—Marian Lockwood and Arthur Draper—*Dial*, \$3.
 THE SUN, ITS PHENOMENA AND PHYSICAL FEATURES—Giorgio Abetti—*Van Nostrand*, \$5.
 SUNDIALS—How to Know, Use and Make Them—R. Newton and Margaret L. Mayall—*Hale*, \$2.

Biology

ADVENTURES WITH LIVING THINGS, A GENERAL BIOLOGY—Elisabeth Krober and Walter H. Wolff—*Heath*, \$1.96.
 APPLIED MYCOLOGY AND BACTERIOLOGY—L. D. Galloway and R. Burgess—*Chem. Pub.*, \$4.
 BETWEEN PACIFIC TIDES—Edward F. Ricketts and Jack Calvin—*Stanford*, \$7.50.
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 BIOLOGY—Truman J. Moore and Paul B. Mann—*Holt*, \$2.
 BIOLOGY FOR PHARMACEUTICAL STUDENTS—Maughan and Hockley—*Williams & Wilkins*, \$6.50.

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LIFE IN AN AIR CASTLE by Frank M. Chapman

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PUTTING ON THE PINCH

Officer Phagocyte nabs a malarial malefactor trying to hijack a red blood corpuscle. (From Robert Hegner: *Big Fleas Have Little Fleas*; Williams and Wilkins.)

DARWIN—L. B. Pekin—*Stackpole*, \$1.25.
EXPERIENCE UNITS IN BIOLOGY—J. Frank Faust and Geo. R. Biecher—*Stackpole*, \$1.60.
FORM AND CAUSALITY IN EARLY DEVELOPMENT—A. M. Dalcq—*Cambridge* (*Macmillan*), \$3*.
KEY TO THE OUT-OF-DOORS—Richard James Hurley—*Wilson*, \$2.50.
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THE SEA AND ITS WONDERS—Cyril Hall—*Mill*, \$2.50.
SOUTHERN NATURE STORIES, Book One—W. B. Baker, Lucien Harris, Jr., and Wallace Rogers—*Turner E. Smith*, 88c.
A TEXTBOOK OF BACTERIOLOGY, 2d ed.—Thurman B. Rice—*Saunders*, \$5.
TEXTBOOK OF MEDICAL BACTERIOLOGY—David L. Belding and Alice T. Marston—*Appleton*, \$5.
THEORIES OF SENSATION—A. F. Rawdon-Smith—*Cambridge* (*Macmillan*), \$2.50*.
THIS IS LIVING—Donald Culross Peattie—*Dodd*, \$3.75.
WILD COUNTRY—F. Fraser Darling—*Cambridge* (*Macmillan*), \$5*.

Botany and Agriculture

ANCIENT AND MODERN AGRICULTURE—A. K. (Dad) Short—*Naylor Co.*, \$2.
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A COLLEGE TEXTBOOK OF PHARMACEUTICAL BOTANY, 6th ed.—Heber W. Youngken—*Blakiston's*, \$4.75.
CONSERVATION IN THE UNITED STATES—H. Ries, A. F. Gustafson, C. H. Guise and W. J. Hamilton, Jr.—*Comstock*, \$2.50.
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FERNS OF THE SOUTHEASTERN STATES—John K. Small—*Science Press*, \$3.50.
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• "It was the innocent discovery by W. C. Roentgen that the discharge of an induction coil through an evacuated bulb produced fluorescence in a nearby paper coated with barium platinocyanide, that ended by upsetting our smug confidence in the Newtonian mechanical world and ultimately gave us a much broader and more powerful method of analysis in the modern wave or quantum mechanics. For it was the subsequent study of the conductivity of gases and the nature of the agents causing x-rays that introduced us into the subatomic world of physics to which the simple mechanics of Newton are not applicable."—Leonard B. Loeb in ATOMIC STRUCTURE (*Wiley*).

Science News Letter, October 22, 1938

ASTRONOMY

Martian Seasons

• "There is now practically no doubt that the pole caps of Mars are composed of snow. The regularity with which they dwindle in size during the summer and grow large again in winter makes it certain that they consist of some substance which vaporizes when the temperature rises and is precipitated again when it falls."—R. L. Waterfield in A HUNDRED YEARS OF ASTRONOMY (*Macmillan*).

Science News Letter, October 22, 1938

ZOOLOGY

Flower Hunters

• "Every afternoon at about four o'clock, during the period when the trees are blooming, a band of five marmosets appears in my balsas and makes the round of the scores of open blossoms . . .

"They are a strikingly marked little people with snowy white underparts, a pointed white crown-patch, chestnut nape, grizzled back and long, black, woolly tail. Their hard little hairless faces of dark blue, tightly drawn skin framed in white, suggest the shrunken, mummied heads prepared by the Jibaro Indians of southeastern Ecuador . . . They have not the interest in me that howlers and capuchins show. The balsa flowers alone concern them. . . When what they want is there, they hold the

EDITORS SAY:

flower in both hands and sink their heads in its open top. Often they pull the petals apart in order that they may more readily get what they seek. Possibly, like the bees that crowd to the flowers, they are gathering its juices, possibly they are gathering bees."—Frank M. Chapman, in LIFE IN AN AIR CASTLE (*Appleton-Century*).
Science News Letter, October 22, 1938

AGRICULTURE

Soil Loss

● "In its natural state the soil is adequately protected against the destructive effects of wind and running water by the vegetable cover—grass and trees—but when this is stripped off in order to cultivate the soil, every puff of wind carries off some of the fine topsoil when it is dry, and every rain washes some of it away, especially on steep slopes . . .

"Three billions tons of soil a year are being washed into the ocean and this is only a part of the total soil removed. Much more is transported and dropped over rich soils, which are thereby often damaged. Much of the sediment is deposited in reservoirs, irrigation ditches, and harbors, which are thereby silted up. The irrigation systems of the West may soon become useless because of this filling up of the storage basins."—Gustav L. Fletcher in EARTH SCIENCE (*Heath*).
Science News Letter, October 22, 1938

PHYSIOLOGY

Genesis

● "Out of the unknown into the image of Man—this is the miraculous change which occurs during the first month of human life. We grow from an egg so small as to be barely visible (0.13 mm.) to a young human embryo almost one-fourth of an inch (6 mm.) long, increasing fifty times in size and eight thousand times in weight. We change from a small round egg cell into a creature with a head, a body and, it must be admitted, a tail; with a heart that beats and blood that circulates; with the beginnings of arms and legs, eyes and ears, stomach and brain."—Margaret Shea Gilbert in BIOGRAPHY OF THE UNBORN (*Williams and Wilkins*).
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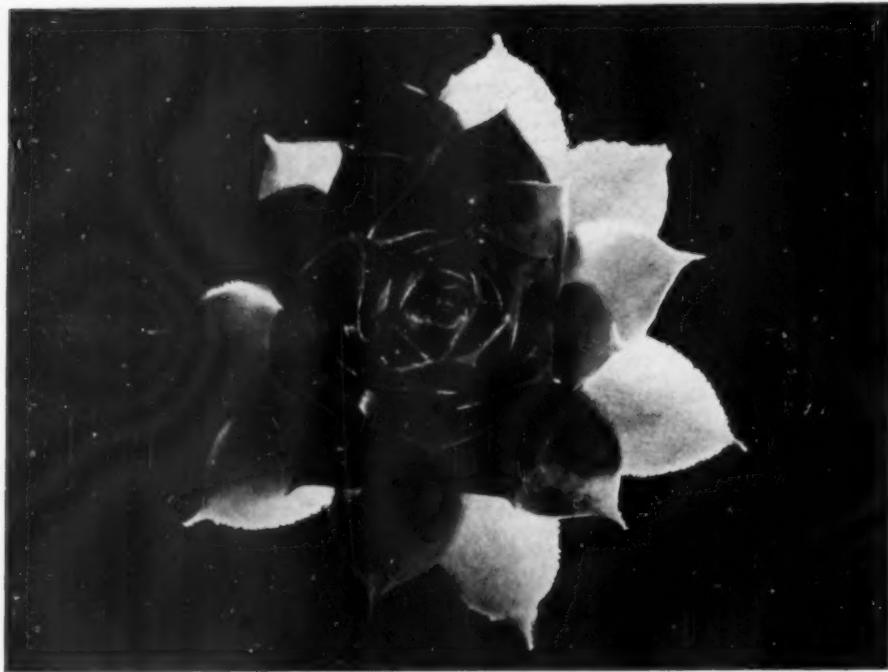
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